

**ABSTRACT**

A method for the ultrasensitive simultaneous measurement of nonlinear optical emission signals in one or two local dimensions wherein excitation light is irradiated in modulated form from at least one light source into an interactive space in which one or several emissions that are nonlinearly correlated with the excitement light can be excited. The light emanating from the interactive spaces is measured using a one or two-dimensional detector array. Measured data is then transmitted to a computer and formatted in a one or two-dimensional data matrix. Further, non-correlated portions of the light emanating from the interactive spaces that are linearly proportionate to the intensity of the excitement light available in the interactive spaces are separated from portions of the light emanating from the interactive spaces which are not linearly proportionate. The invention also relates to an analytical system for carrying out this method.